Message

From: Matson, Eric (IHS/PHX) [Eric.Matson@ihs.gov]
Sent: 11/29/2017 10:50:30 PM
To: Tim Bodell [tbodell@hopiuc.com]
CC: Carter, James (IHS/PHX) [James.Carter2@ihs.gov]; DeCoteau, Jesse (IHS/PHX) [Jesse.Decoteau@ihs.gov]; brad.rea@ihs.gov; Rapicavoli, Emmanuelle [Rapicavoli.Emmanuelle@epa.gov]; lpuhuyesva@hopi.nsn.us; Carroll Onsae [consae@hopitelecom.com]; Heintzman, Tom (IHS/PHX) [Tom.Heintzman@ihs.gov]
Subject: RE: Proposed Static Water Level Analysis of Turquoise Trail Wells
Attachments: HAMPjsaDEC2104.pdf; Bodell 111717.pdf

Hi Tim,

In preparation for today's call I reviewed the below email and attachments and appreciate your sharing of these plans. I apologize but I hadn't previously noted your question at the bottom of your email regarding potential IHS participation. In answer to that question, IHS is comfortable with the quality of the Turquois Trail Wells for the following reasons:

- We believe these wells to be some of the more highly engineered wells that are in the N-Aquifer.
- We had virtually 100% inspection by a highly regarded hydrogeological firm (Shomaker and Associates). Their Long Term Performance Report and our subsequent conversations with them regarding long term viability of the wells from both a quality and quantity standpoint gave us the confidence to proceed with and commit to substantial future funding for continuation of the HAMP project.
- Lionel Puhuyesva with the Tribes water quality department was also engaged throughout the well construction project.

Finally, the projects funded to complete the well and earlier well associated planning studies are closed. Therefore and in answer to your below question, we don't have funding to provide for the additional studies that you plan to undertake although we fully respect and understand your desire to conduct them and would be interested in any pertinent information you might obtain. Recognizing that an operational portion of the HAMP may take three years to fund and construct it is quite possible that it will be some time before a permanent pump is placed in these wells and additional pump testing and evaluation will likely be required at that time. Thanks again for keeping us in the loop.

Eric L. Matson, P.E.
CAPT, USPHS
Director (Acting), Sanitation Facilities Construction Program
Phoenix Area Indian Health Service
40 N. Central Ave., Suite 720
Phoenix, AZ 85004
Phone: 602-364-5072

From: Tim Bodell [mailto:tbodell@hopiuc.com]
Sent: Tuesday, November 21, 2017 9:39 AM
To: Matson, Eric (IHS/PHX) <Eric.Matson@ihs.gov>
Cc: Carter, James (IHS/PHX) <James.Carter2@ihs.gov>; DeCoteau, Jesse (IHS/PHX) <Jesse.Decoteau@ihs.gov>; Rea, Brad (IHS/PHX) <Brad.Rea@ihs.gov>; Rapicavoli, Emmanuelle (Rapicavoli.Emmanuelle@epa.gov) <Rapicavoli.Emmanuelle@epa.gov>; Lionel Puhuyesva <LPuhuyesva@hopi.nsn.us>
Subject: Proposed Static Water Level Analysis of Turquoise Trail Wells

Captain Matson,

As requested by IHS, and based on the conclusions of John Shoemaker & Assoc. Report of December 2014 Page 3, Paragraph 5:

"Leakage of poor-quality water from the D Aquifer into the N Aquifer is a potential problem. The pumping test of Well 2 suggests the presence of a leaky boundary condition..."

Hopi Utility Corporation recommends the following tasks to measure the degree of post drilling leakage from the D Aquifer into the N Aquifer at Turquoise Trail Wells Number 2 and Number 3.

1.0 Static Water Level Analysis and Associated Survey (Estimated Cost $15,000)
1.1 Perform closed loop transect survey between Turquoise Trail Wells Number 1,2 and 3 and a State Plane Coordinate Bench Mark to determine the horizontal and vertical locations of Top Of Casing at a resolution of 0.2 Feet.
(Estimated Cost by Mark DePauli, P.E.,R.L.S. $7,700.00)

1.2 Install double locking sounding port on Turquoise Trail Number Wells # 1 and 2, with concrete pad and bench mark monument .
(Estimated Cost by Ya'at'e'eh Welding and Fabricating $2,300.00)

1.3 Capture current SWL (Static Water Level) elevations at Turquoise Trail Well # 1,2 and 3.
(Work-in-kind by HUC/HDWR)

1.4 Compare post drilling and current SWL measurements to determine changes in the gradient of the potentiometric surface, and potential hydraulic communication between D and N Aquifers under the past 3.5 Years of ambient pumping conditions.
(Estimated cost by DBSA $5,000.00)

1.5 Project Task Administration
(Work In Kind by HUC)

Based on the results of SWL measurement and analysis additional tasks may be recommended. (NOT RECOMMENDED AT THIS TIME)

2.0 Well Logging (Not recommended at this time.)
2.1 Perform Conductivity, Temperature and Depth Sonde logging of TT # 2 and # 3 only.

2.2 Conduct spinner or acoustic velocity logs of production zones.

2.3 Install data recording pressure transducers.

2.3 Perform cement bond logging only if other lower cost screening methods indicate high degree of annuli leakage.

Would IHS like to participate in the performance of Task One Static Water Level Analysis and associated survey costs?

Thank you for your consideration.

Gratefully,

Tim

HOPI UTILITY CORPORATION

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